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(71) Applicant
Rolls-Royce Limited, 65
Buckingham Gate,
London, SW1E 6AT
(72) Inventors
Derek Lewis,
Ian David Strachan
(74) Agent
G. T. Kelvie

(54) Casting Cores

(57) A foundry core for the production of small diameter elongate holes within a casting comprises a refractory tube within which is arranged a reinforcement. The reinforcement may be soft iron or Cu wires and the tube woven or knitted refractory fibres, such as glass, carbon or asbestos.

The core is removed by extracting the wires and pulling out the tube.

Fig. 1.

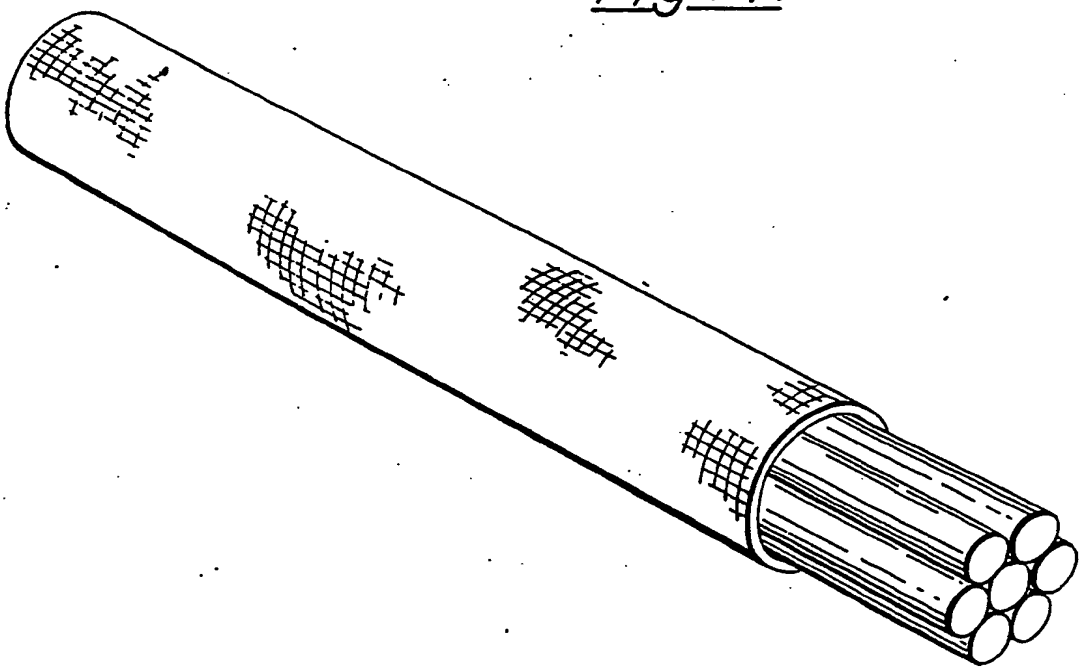

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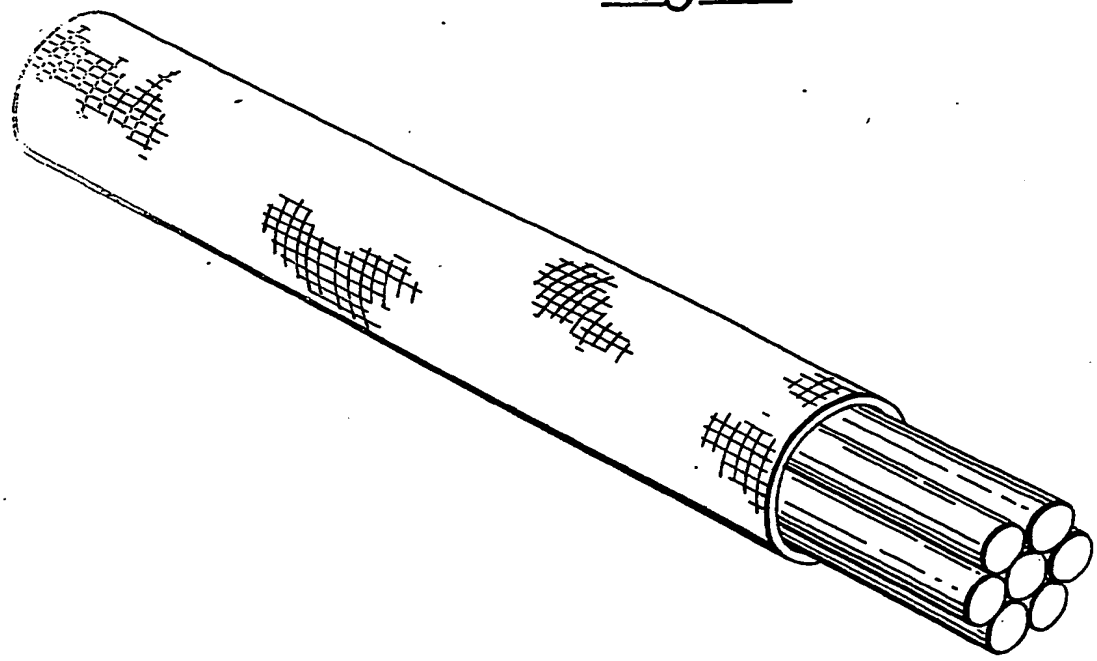
Fig. 1.



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SPECIFICATION

Improvements in or Relating to Cores

This invention relates to cores, and in particular to cores suitable for the production of relatively small cross-section, elongate holes within articles.

It has been well known in the past to cast holes within metallic casting using cores. Such cores have usually taken the form of sand type cores and these suffer the disadvantage of being relatively weak and are therefore not suitable for the production of relatively small cross-section holes. It has also been known to manufacture cores from silica rods and these have in fact been used extensively from the production of holes of relatively small cross-section, however these suffer the disadvantage of being extremely fragile.

An object of the present invention is to provide a core suitable for the manufacture of relatively small cross-section elongate holes in which the aforementioned disadvantages are substantially eliminated.

According to the present invention a core suitable for defining a hole within a cast article comprises a refractory tube within which is provided reinforcement means.

Preferably the refractory tube comprises a woven or a knitted refractory fibre tube.

Preferably the reinforcement means comprise at least one reinforcement wire arranged within the knitted refractory tube.

Furthermore at least one elongate reinforcement wire may be made from soft iron or copper.

After insertion of the reinforcement means within the refractory tube, the tube is coated with a refractory lubricant wash.

Preferably the refractory tube is knitted from glass fibre. Alternatively the fibre may comprise carbon or asbestos.

According to a further aspect of the present invention after the casting has been made the core is removed from the casting by removing the reinforcement means from the refractory tube and subsequently removing the refractory tube from the casting.

For better understanding of the invention an embodiment thereof will now be more particularly described by way of example only and with reference to the accompanying drawing which shows a pictorial view of one embodiment of the invention.

The core comprises an outer part comprising a refractory tube which is woven from glass fibre or some similar relatively flexible refractory fibrous material such as for example carbon or asbestos fibre. Obviously the refractory tube may be woven or knitted by any conventional weaving or braiding system and can also be woven to any desired diam ter to produce any particular size of hole required in the finishing casting.

The refractory tube will be produced in a continuous length, therefore any desired length of tube may be cut off in accordance with the length of the particular hole required. In this state the refractory tube is very flexible and to make it more managable it is provided with reinforcement means which comprises one or more reinforcement wires which may be made from some suitable ductile metal for example soft iron or copper.

After assembly of the reinforcement members the core may be bent using a former if desired to produce a hole other than rectilinear in form. The assembled core is subsequently coated with a refractory wash which helps retard the breakdown of the refractory woven tube during the casting process. The refractory wash also includes a quantity of graphite or talc to assist the withdrawal of the core from the finished casting.

After the application of the refractory wash to core is stoved in the same manner as a conventional core to remove any gases from the refractory coating. The core is then ready for use in the same manner as a normal core.

The core is positioned within a mould and th mould is cast. After the casting has cool d the metal wires are removed one at a time from within woven refractory tube. The woven refractory tube may then be pulled from the casting. However in some circumstances both the woven refractory tube and reinforcement wires may be removed simultaneously. If the tube breaks off during removal, the remainder can be removed from the casting by blasting or by use of a rotating flexible wire.

It will also be appreciated that by use of a core made in accordance with the present invention it is possible to produce holes in castings having differing stepped diameters by simply sliding progressively larger diameter knitted tube over the first tube. However in this instance it is preferable to coat the exterior of the tube with a layer of suitable lubricant for example graphite or talc to facilitate the removal of all the tubes from the finished casting.

Claims

1. A core suitable for defining a hole within a cast article comprising a refractory tube within which is provided reinforcement means.

2. A core as claimed in claim 1 in which the refractory tube comprises a woven or knitted refractory fibre tube.

3. A core as claimed in claim 1 in which the reinforcement means comprises at least one reinforcement wire arranged within the knitted refractory tube.

4. A core as claimed in claim 3 in which the reinforcement wire is made from copper or soft iron.

5. A core as claimed in claim 1 in which after insertion of the reinforcement means within the refractory tube, the tube is coated with a refractory lubricant wash.

6. A core as claimed in claim 1 in which the refractory tube is knitted or woven from glass fibre.

7. A core as claimed in claim 1 in which the

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refractory tube is knitted or woven from carbon or asbestos fibre.

8. A core as claimed in claim 1 in which after a casting has been poured and solidified, the core is removed from the casting by removing the reinforcement means and subsequently removing the refractory tube.

9. A core substantially as hereinbefore described by way of example only and with reference to the accompanying drawings.

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